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A Scholar's Devil Theory

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IN A LENGTHY interview which was reported in the January 24, 1958 issue of *U. S. News & World Report* under the title of "What Went Wrong with U. S. Schools," Professor Arthur Bestor leveled a number of serious charges against school administrators, professors of education, and the Educational Policies Commission.

The theme of the entire article was set by Professor Bestor's first sentence in reply to the opening questions in the interview:

Q: Dr. Bestor, why is it that we suddenly find ourselves with an inadequate educational system? What went wrong in our schools?

A: The basic trouble is that the persons running our puplic-school system lost sight of the main purpose of education—namely, intellectual training.

The first of these two opening questions reveals an amazing amount of naïveté. And the second one is a loaded question.

Where, one wonders, has Professor Bestor's interrogator been during the past several years, and how insensitive must he be, to be able to say that we "suddenly" find ourselves with an inadequate school system? Unless he had his tongue in his cheek, he must either have overlooked or ignored many major events of the past decade, all of which were widely publicized. It was in 1949 that Mr. Roy Larsen and other men of his stature set in motion the vast National Citizens Commission for the Public Schools (now succeeded by the National Citizens Council for Public Schools) to help avert the impending crisis in our elementary and secondary schools—a crisis of which professional educators had been trying to warn the public for some time. The recognition of this crisis had become so widespread by 1955 that President Eisenhower called a national White House Conference on Education in that year. Preparatory to this giant meeting in Washington, pre-White House Conferences, peopled in major part by lay delegates from county and local conferences previously held, were convened in virtually all the states. There was such an outcry that the inadequacies of our colleges, universities, and other adult education agencies had gone untreated if not unrecognized in this White

House Conference that President Eisenhower issued an executive order in April, 1956 creating the President's Committee on Education Beyond the High School. Five regional conferences, with about one third of the conferees being laymen, were held. Both the Conference and the Committee issued widely publicized reports which variously set forth recommendations for remedying the inadequacies of our schools and colleges. Even more widespread has been the publicity given the findings of studies of the acute shortage of teachers reported by the National Education Association —studies which showed, for example, that there were but 108 newly trained teachers of high school physics, and but 226 newly trained teachers of high school chemistry, who entered the teaching profession in the fall of 1955—while there were 27,000 secondary schools in this country to be staffed. And to conclude our partial listing of the events of the past decade which demonstrated that there was a realistic awareness of the inadequacies of our educational system, there was the 1955 report of the Science Teaching Improvement Program, a creature of the American Association for the Advancement of Science; here is the warning which was set forth in this report:

> High-school principals, faced with an inadequate supply of science and mathematics teachers, have two courses of action open to them. They may use teachers who are inadequately prepared or they may drop courses that their students want and should have. Either action will mean that fewer students in the years ahead will enter college with a developing interest in science and mathematics.
>
> The shortage cannot help but affect unfavorably the rate of production of future scientists and the quality of their training....
>
> The shortage of teachers of science and mathematics poses such serious consequences for scientific and technologic progress in the United States that an immediate, coordinated, large-scale attack on the underlying causes seems necessary.[1]

No, we did not "suddenly" find ourselves with inadequate school and colleges. What was "sudden" was the near-hysteria about this circumstance that Sputnik induced.

As we have already said, the second of the two opening questions is loaded. It is of the "Have you stopped beating your wife" variety. It presupposes that something "went wrong," hence that at some more fortunate prior time things "were right"—in this instance, with the public secondary school, for this is what the interview turned out to be about.

[1] *Science Teaching Improvement Program*, 1515 Massachusetts Avenue, Washington, D. C., 1955, pp. 2-3.

Professor Bestor accepted this presupposition. Then, in one guise or another throughout the entire interview no less than in his opening sentence, he offered his devil theory to account for what he would have his readers believe "went wrong." The "professional educationists" are the villains in the piece. They "lost sight of the main purpose of education—namely, intellectual training."

More than this, Professor Bestor also told his readers when it was that the devils in question first appeared on the educational scene. The "professional educationists," he said, "jumped the rails a quarter of a century or so ago." This would fix the beginning date of the alleged dereliction at about 1930. "Now," said Professor Bestor, "we are paying the price of a 'soft' educational policy." We are, he said, "dangerously short of men and women with thorough and rigorous training in science and mathematics and other fundamental fields." Prior to about 1930, he would have us believe, the public secondary schools were training appreciably larger proportions of American youths in science and mathematics than is now the case, for only if this is what he intended to imply could he possibly claim that something "went wrong" with these schools in the intervening years. If he did not intend to imply this, he would have to say that what "went wrong" relates to conditions which transpired elsewhere than in our high schools—in the onrush of unprecedented technological developments, quite certainly.

This, then, is our setting. Now let us get on with the business of recounting the more serious of Professor Bestor's charges and of setting forth the factual evidence which bears on each of these derogatory allegations.

Let us begin by taking note of certain statements that Professor Bestor made concerning the Educational Policies Commission. After attempting to link the Commission with the "school of thought" which holds "the belief that democracy requires the leveling downward of the intellectually able," Professor Bestor had this to say about its most recent report:[2] "It pays lip service to the idea of 'increased attention to the gifted young people,' but cancels most of this out by repeating a lot of antiquated nonsense about the danger of creating an 'elite class.' In particular, the report expresses nothing but hostility for 'rigorous' programs of study for able students—exactly the kind that students of this caliber require—

[2] *The Contemporary Challenge to American Education*, National Educational Association, Washington, D. C., 1958.

because in the past 'such curricula were used to weed out the less able pupils and relegate them to inferior schools, thereby producing both an elite and a mass of followers.'"

Now let us reproduce from the Commission's report the two sections to which Professor Bestor referred. First, here is the section that he characterized as "lip service":

EDUCATION OF THE GIFTED

American leaders in public life or in private occupations come not from one class or one economic level; they rise from every section of the people and possess widely varied talents. The country needs an educational system which attracts leaders from every source and provides for the talented without divorcing them from the greater society.

Gifted pupils should be identified early and given early opportunities to challenge their powers and develop their talents to the fullest. They should be motivated to high achievement and should have a sense of responsibility for the wise and socially profitable employment of their abilities. It is extremely important that a larger proportion of these young people seek higher education.

In making plans for the education of the gifted, it is important to realize that giftedness may be difficult to recognize. Far more is involved than merely testing verbal abilities and equating them with intelligence. Talents lie in many areas and are of many types. Pupils who rank low by one set of standards may rank high by another. Wide and flexible programs are needed to identify talents and to plan for them that combination of general studies which will develop them as good citizens and advanced courses which will develop their talents to the fullest.

In high schools, courses of study should be designed to allow the abler students to carry heavier loads in balanced programs which include mathematics, science, and languages, together with English, social studies, and humanities. Also, care should be taken to give talented students the opportunity to satisfy their wide intellectual and cultural interests and their specific occupational interests. Courses for these students can be provided in such a way that they are not held back by the less able. This can be done and is being done in comprehensive high schools without prejudice to the democratic school spirit or to the status of students who progress at varying rates of speed and varying depths of scholarship.

Advanced courses, however, should not be imposed on students who lack the required talent. To do so would deprive the latter of the educational program which will benefit them and consequently the nation. National welfare demands not only the education of the outstandingly able but also the best possible education of all students. America requires trained talents of every type.[3]

[3] *Op. cit.*, p. 9-11.

And here in its entirety is the section from the Commission's report containing the part which Professor Bestor said "cancels most of this out by repeating a lot of antiquated nonsense":

American imitation of Soviet education would undermine American democracy.

Soviet educational practices cannot be used to achieve American objectives. Soviet education is designed to serve the communist state. It creates an intellectual and technological elite which wields power and controls opinion in the nation.

American educators are familiar with curricula of the rigor and rigidity of that of the Soviet Ten-Year School. It resembles those of certain nineteenth-century European schools whose purpose was to create an elite class. In general such curricula were used to weed out the less able pupils and relegate them to inferior schools, thereby producing both an elite and a mass of followers. Evidence begins to accumulate that this is the impact of the Ten-Year School's secondary curriculum of Soviet society.

The Soviet Union has been making great progress toward universal ten-year education for all its young people, but this does not mean that all students will graduate from the Ten-Year School. There are many other types of Soviet schools, including vocational and evening schools. The last three years of the Ten-Year School, which are the main route to higher education, are far from universal. Apparently only half of the students even enter the last three years, and only one-third graduate.

The educational tradition in the United States is totally different. American schools have sought the development of each individual and have avoided the creation of an aristocratic class. Americans have sought to develop leadership and high talent within the framework of the whole society rather than by segregating the most promising. That is why comprehensive, universal schools have been developed.

Freedom of individual choice is an essential aspect of American democracy, but is a matter of relatively small moment in the Soviet Union. In the Soviet Union the government is the sole employer, and, consequently, the institutional framework is well adapted to influence the career choices of individuals, so that their energies may be channeled into such areas as the leadership may decide. When Americans are told about the numbers of engineers and technicians graduated by Soviet schools, they should ponder the extent to which those figures reflect governmental decision as to which fields are to be favored."

...The challenge before American education ought not, therefore, to be regarded as a matter of competition with Soviet science, technology, or education. The real challenge to America is to fulfill the great potential of her own ideals. For American education this must involve, at the least, increased attention to the gifted young people in schools that are designed for all young peo-

ple, improved guidance in planning programs suited to individual talents and capacities, and improvement in teaching and the status of teachers."[4]

Now that he has seen what the Commission actually said, let the reader judge for himself whether its members were repeating " a lot of antiquated nonsense" in warning against the hazards of trying to pattern our secondary schools after those of present-day Russia or of nineteenth-century Europe. Also, let the reader decide for himself whether this timely warning "cancels out most" of what the Commission said about the education of the gifted within the framework of the comprehensive high school.

Others of Professor Bestor's comments concerning the Commission were apparently also intended to be disparaging. Reference here is to his statement that the report from which we quoted above is "in effect" a report "by the National Education Association," an organization which, without producing any proof, he had earlier said, "has deprecated very strongly the fundamental intellectual disciplines." We also refer to this allegation that the Commission "echoes the views of professional educationists." This is to imply that men of the stature of Ex-Ambassador and Ex-President James B. Conant, President Virgil M. Hancher, and President Herman B. Wells—to name but three among the distinguished persons who make up the Commission—would be a party to the deprecation of the fundamental intellectual disciplines and that they would echo some sentiment that is not their own.

This brings us to the first of the instances in which Professor Bestor compared the Russian and the American educational systems to the discredit of the latter. "We have wasted an appalling part of the time of our young people on trivialities," he said. "The Russians have had sense enough not to do so. That's why the first satellite bears the label 'Made in Russia,'" he continued. This is an amazing statement which will not bear scrutiny. During the late 1940's, under the fourth 5-year plan, Russian teachers were heavily saddled with the most vicious kinds of "trivialities" which interfered with good teaching at every turn. Here is an authoritative description of what took place by official decree:

During these years of the fourth 5-year plan, the intensified subordination of education to the aims of the Communist Party took the following form:

[4] *Op. cit.*, pp. 21-23.

(1) The inculcation of patriotism was the first and foremost task of teachers. This was interpreted as narrow nationalism which demanded fanatical loyalty to the regime and unmitigated antagonism toward the outside world.

(2) Teachers were required to show Soviet and Russian achievements as superior to Western achievements in science, art, literature, and culture in general.

(3) The 'older brother' role of the Great Russian people toward the minority peoples in the USSR was underscored throughout the educational process.

(4) The glorification of Stalin as the leader of genius to whom the Soviet people owed all its success became of paramount importance in teaching. Student isolation from general information about foreign cultures and peoples was carried to extremes. Information was omitted, slanted, distorted.[5]

This was not remedied until the fifth 5-year plan was announced in 1951. It is since 1951, then, that "the Russians have had sense enough" not to burden their teachers with the vicious impediments noted. Since Russian children begin school at age of seven, the members of the first class attending the 10-year school after it was freed of these impediments were but 13 or 14 years old and in but their sixth or seventh year of schooling in 1957 when the first Sputnik roared into space bearing the label "Made in Russia." As the Educational Policies Commission has pointed out, "The Soviet scientists who have succeeded in placing a satellite in an orbit are in few cases products of the Soviet school system now operating. Many of them, in fact, received their education elsewhere than in the Soviet Union."[6]

In the interview Professor Bestor made much of the report that the graduates of the Russian equivalent of our high school have had 5 years of physics, 4 years of chemistry, 10 years of mathematics, and so on. He proposed that citizens demand of the local superintendent or principal that he tell how many of last spring's graduates had completed a like number of years of work in these subjects. "And remember," he said, "that the Russians take 10 years for their program, whereas we take 12."

This clearly implies that, timewise, "a year of mathematics," "a year of chemistry," or "a year of physics" means about the same thing in the secondary school here that it does in Russia. It also clearly implies that our 12-year plan affords more time in school

[5] U. S. Office of Education, U. S. Dept. of Health, Education and Welfare, *Education in the USSR*, Washington, D. C., 1957, p. 55.
[6] *The Contemporary Challenge to American Education*, National Education Association, Washington, D. C., 1958, p. 20.

than does the Russian 10-year plan. All of these suppositions are false.

With us, "a year of mathematics" in high school means 5 hours per week for at least 36 weeks. And "a year" of laboratory science, be it chemistry or physics, means 7 hours per week for at least 36 weeks. In the USSR, "a year of mathematics" means, on the average, 2 hours per week when computed on our basis of 36 weeks. When similarly computed, "A year of chemistry" means 2½ and "a year of physics" means 3⅓ hours per week. The Russian school week is 6 days in length while ours is 5; their school year is typically of 10 months' duration, while ours is characteristically 9; pupils there receive a total of 10,742 hours of schooling, while our youngsters are given at a total of 10,710 hours.[7]

The figures just noted are given to show how misleading it is to base comparisons on the number of "years" any given school subject is taken by pupils in the schools of the two countries. These data should not be permitted to obscure the fact, however, that much more work in science and mathematics is taken in the Russian schools than is typically true in this country.

Let us turn now to specific charges that Professor Bestor levels against what he calls the "professional educationists." One is that the high school diploma is no guarantee of intellectual superiority. He implies that it should be granted only to those who are competent to do successful college work. What is sauce for the goose should also be sauce for the gander. I serve on the staff of the same University that Professor Bestor does. If he has yet raised his voice to urge that we should grant the BA or BS degree only to those students who are competent to do successful work in the Graduate College, and stigmatize all the rest by handing them only a certificate of attendance at the commencement exercises, it has escaped my attention.

Professor Bestor charges that "A good many educationists think it is undemocratic for a school to reward superior intellectual achievement." A good many" is a weasel phrase which could mean but a fraction of one percent of all schoolmen, or it could mean anything above this figure. To the layman, I suspect that it means a fourth or more. Anyone who has visited public high schools at all extensively knows that nearly all have their scholastic honor rolls, valedictorians and salutatorians. Both the National Honor

[7] U. S. Office of Education, U. S. Department of Health, Education and Welfare, *Op. cit.*, pp. 60-71.

Society and the National Junior Honor Society are officially and vigorously supported by the National Association of Secondary School Principals.

This brings us to the charge that "all the basic subjects" have been neglected "because our educational-policy makers didn't think them important. They wanted the schools to deal only with the so-called 'practical' things, things in front of their noses—cooking, automobile driving, 'better boy-girl relationships,' 'life adjustment' and the like. Now Sputnik has made science and mathematics 'practical' and they are ready to plump for these two subjects." Aside from the National Education Association and the American Association of School Administrators, there is no specific mention in Professor Bestor's diatribe of any other organization made up solely of "professional educationists," the persons he mistakenly takes to be our "educational-policy makers." He makes mention of a "pompous educational commission" in Illinois, which is undoubtedly the organization known as the Illinois Curriculum Program—whose policies, incidentally, are set by a statewide steering committee made up of laymen and professional educators. None of these organizations, and no other other that Professor Bestor could mention, "want the schools to deal *only* [my italics] with the so-called practical things" such as he named. Nor do any of these organizations, or any other that he could mention, want the schools to make any of the things he mentioned one of its primary concerns.

The president and the Executive Secretary of the National Education Association, and the President of the American Association of School Administrators, are members of the Educational Policies Commission. We have already quoted what this body recently had to say about the education of gifted students, one sentence of which was this: "In high schools, courses of study should be designed to allow the abler students to carry heavier loads in balanced programs which should include mathematics, science, and languages, together with English, social studies, and humanities."

In its year book on the *American School Curriculum* published in 1953—some little time before Sputnik—the American Association of School Administrators took this position: "One of the perennial obligations of the school in any society it to preserve and transmit to the next generation the gains in knowledge and skill which the race has achieved up to the present time. This is no static function; it is not preserving the 'dead past.' Rather, it is preserving the means of growth. By thus inheriting a body of scientific knowl-

edge, a highly developed language, and intricate mathematics, a wealth of art and literature, each new generation is able to ride on the shoulders of previous generations."

And the "pompous educational commission" in Illinois took this stand in one of its official publications (*The Schools and National Security*) in the pre-Sputnik year of 1951: In the chapter on English; "In times of stress, even more than in normal years, pupils should acquire, first of all, through their English instruction the greatest possible competence in the four areas of communication—reading, writing, listening, and speaking": in the chapters on mathematics and science; "For an electorate to be literate, its members must be able to understand and use the language of quantity and form and space relationships—namely, mathematics," and "science education has fundamental values for the individual and the community...the very nature of the emergency and the long-range need for competence in science on the part of both the layman and the specialist demand an accent on science teaching": in the chapter on foreign language: "The most significant unifying foundation which the countries of the western hemisphere have in common to their classical heritage in language, literature, architecture, law, and conceptions of the responsible citizen. The present, as well as potential, contributions of the classical languages and literatures should be capitalized to the end that the best in western civilization may be guarded against deterioration by default at home while it is presumably being defended from aggression abroad."

Professor Bestor made much more ado about the alleged neglect of science and mathematics than he did about any other subject. So let us present pertinent statistcs which bear on is charge. Let us return to Professor Bestor's golden age of secondary education—the period just prior to 1930, and just before he alleges that things "went wrong" because the professional educators "jumped the rails"—for our baseline data respecting enrollments in science and mathematics. For this purpose we shall employ the statistics for the 1928-29 school year as reported by the U. S. Office of Education. Let us take note of the fraction of the total youth population of the appropriate age then enrolled in each of these subjects. Then let us note and compare the corresponding percentages for the 1956-57 school year, the latest date for which enrollment data have been reported by the U. S. Office of Education.

The question we shall be able to answer, then, is this: In the

period preceding the time when the professional educators were said by Professor Bestor to have "jumped the rails" and to have "lost sight of the fundamental purpose of education—namely, intellectual training," were the public secondary schools training larger, or were they training smaller, proportions of all American youths in science and mathematics? Said differently, in which period—in 1928-29 or in 1956-57—were the secondary schools making it possible for the larger proportion of all young men and women to prepare themselves for "the rigorous training in science and mathematics" that our times now demand?

Obviously, if the percentages for Professor Bestor's golden age turn out to be appreciably larger than those for the present era, we will be forced to conclude with him that something indeed "went wrong" with the public secondary school. No less obviously, if the very opposite is found to be true, we must conclude that his "went wrong" charge is unwarranted—that whatever shortages of "men and women with thorough and vigorous training in science and mathematics" now obtain cannot be attributed to any decline in the proportions of all youths who took courses in these subjects in high school, hence that this shortage must be due to some other cause or causes.

Here are the comparative enrollment figures:

Subject	Number Enrolled		Enrollment Expressed as Percentage of Total Age Group* Corresponding to School Grade in Which Subject Is Usually Taught		Ratio of 1928-29 Percentage to 1956-57 Percentage
	1928-29	1956-57	1928-29	1956-57	
General Science	507,000	1,518,000	20.3	59.4	1:2.9
Biology	393,000	1,430,000	16.8	59.8	1:3.6
Chemistry	205,000	520,000	9.1	22.7	1:2.5
Physics	198,000	310,000	8.8	13.5	1:1.5
General Math	228,000	976,000	9.1	38.2	1:4.2
El. Algebra	774,000†	1,518,000	30.9	59.4	1:1.9
Pl. Geometry	476,000†	788,000	20.3	32.9	1:1.6
Int. Algebra	246,000†	484,000	11.0	21.1	1:1.9
Solid Geometry	98,000†	160,000	4.4	7.0	1:1.6
Trigonometry	37,000	200,000	1.6	8.7	1:5.4

*U. S. Office of Education gives number in each age group for 1956-57. Number in each age group in 1926-27 estimated from U. S. Census data on basis of assumption that the relative number in each was the same in 1928-29 as it was in 1956-57.

†Estimated on basis of known proportions taking these subjects in 1956-57. In its report for 1928-29, the U. S. Office of Education combined all algebra enrollments into one figure, and did likewise for all geometry enrollments.

These data certainly do not show that the secondary school has been marching backward into the future over the past quarter of a century or so by enrolling progressively fewer of all American youths in the science and mathematics subjects. To the contrary, they reveal that the proportions of all youths of the appropriate age so enrolled are from 1½ to 5 times greater today than they were in Professor Bestor's golden age. They conclusively show that his "went wrong" charge is unwarranted.

Now let us take note of the relationship between two rates of growth which are relevant here. Let us compare the percentage increase in the enrollment in each science and mathematics subject with the percentage increase in the number of youths of the age typically found at the grade level at which that subject is usually taught. Here are these data and the ratios they afford:

Subject	1928-29 to 1956-57 Percentage Increase in Total Age Group Corresponding to School Grade in Which Subject Is Usually Taught	1928-29 to 1956-57 Percentage Increase in Enrollment	Ratio
General Science	2.3	199.4	1: 86.7
Biology	2.2	263.9	1:120.0
Chemistry	2.1	153.7	1: 73.2
Physics	2.1	56.6	1: 28.3
General Math	2.3	328.1	1:142.6
El. Algebra	2.3	96.1	1: 41.8
Plane Geometry	2.2	65.5	1: 29.8
Int. Algebra	2.1	96.7	1: 46.0
Solid Geometry	2.1	63.3	1: 30.1
Trigonometry	2.1	440.5	1:209.8

These data show that the percentage increases in enrollments in science and mathematics subjects are from 28 (physics) to 210 (trigonometry) times greater than the percentage increases in the number of youths in the age groups to which these subjects are usually taught. They reduce to an absurdity the charge that by "jumping the rails" those who preside over our high schools have caused proportionally fewer of the youths of this country to receive instruction in science and mathematics.

Up to this point our computations have been based on the total youth populations of 1928-29 and 1956-57, for this is the basis which is relevant to professor Bestor's implication that since about 1930

fewer men and women have been given the foundational high school work which they must have in order to undertake thorough and rigorous college training in science and mathematics. Professor Bestor seems never to use this basis for his reported calculations, however. Instead, in an earlier denunciation, he based his calculations on the number of pupils enrolled in the "then" (1900) and "now" (1950) comparison periods employed, but generalized his conclusions to the total population without remarking that only a small fraction (8%) of all youths attended the public high school "then."[8]

So let us rework our data, as it were, to see how the 1928-29 and 1956-57 percentages respecting enrollments in the advanced high school subjects compare when they are based on the number of pupils enrolled rather than on the total youth population. The advanced high school subjects needed for thorough and rigorous college training in science and mathematics are chemistry, physics, intermediate algebra and trigonometry. So let us see what the comparative percentages are for these subjects.

In 1928-29, 34% of all the eleventh grade pupils took chemistry. Since the total number of eleventh grade youngsters was but 57% of the number enrolled in the ninth grade, we can see that during the 1928-29 epoch only 19% of the entering pupils took chemistry during their high school careers. In 1956-57, 35% of the juniors took chemistry. Since the total eleventh grade enrollment was 67% of the number registered in the freshman class, it is apparent that 23% of the entering pupils took chemistry during their stay in high school in the 1956-7 era.

Similar computations reveal that 20% of the entering class took physics during their high school careers in the 1928-29 period. The corresponding figure for the 1956-57 era was 14%.

In intermediate algebra, the corresponding figures are almost identical; 23% for the 1928-29 and 22% for the 1956-57 era.

During their high school days 4% of the entering pupils took trigonometry in the 1928-29 period. For the 1956-57 era, this figure was 5%.

Now let us take note of a related consideration which must be reckoned with if comparisons based on the percentages of pupils enrolled in advance subjects in the two comparison periods are to be fair. In 1956-57 a far larger proportion of all youths of high school age were enrolled in the public secondary schools than was true in

[8] Harold C. Hand, "Black Horses Eat More Than White Horses," *Bulletin of the American Association of University Professors*, 43: Summer, 1957, pp. 266-279.

1928-29. Numerous studies have shown that it is characteristically the less academically able youths who do not complete high school, and the presumption is strong that those who do not enroll at all are typically youths of lesser academic aptitude. These studies also show that it is the boys and girls from families of lower socio-economic status who most commonly become early school leavers, and again the presumption is strong that those who never enter the ninth grade are largely members of such families where education is too infrequently valued and where ambitions to attend college are too seldom nourished.

With these thoughts in mind, coupled with the recognition that the nature of chemistry, physics, intermediate algebra, and trigonometry is such that these subjects are suited to the capabilities of only the abler students, let us look now at certain highly significant figures for 1928-29 and 1956-57. Of all the youths of the appropriate age in this country, the following proportions were attending the public high school in the two periods under comparison:

	1928-29	*1956-57*
Ninth grade	55% — of all 14 year olds in the U.S.A.	— 88%
Tenth grade	46% — of all 15 year olds in the U.S.A.	— 81%
Eleventh grade	36% — of all 16 year olds in the U.S.A.	— 66%
Twelfth grade	29% — of all 17 year olds in the U.S.A.	— 55%

These data are for public high schools, it should be remembered. An additional 7% of all youths in the country were attending private high schools in 1928-29; in 1956-57 this figure was probably about 8%. We see, then, that about 95% of all 14 year old youths entered the ninth grade in 1956-57, which means that the high school pupils varied over virtually the full range of academic aptitude and home background. In 1928-29, on the other hand, not over two thirds of all the 14 year olds entered the first year of any high school in this country.

All in all, the enrollment and attendance statistics just reviewed give no comfort to anyone who would like to believe that the professional educators "jumped the rails a quarter of a century or so ago" to the subsequent deterioration of appropriate enrollments in those advanced subjects which enable students to undergo "thorough and rigorous training in science and mathematics" when they go on to college. Regardless, then, of whether we base our computations on the total youth population or on the number of boys

and girls attending high school, we see that Professor Bestor's devil theory is grossly at variance with the pertinent facts in the case.

Professor Bestor gave no factual evidence whatsoever that our high school students are learning less in any subject, or that they are less well prepared for college or for life, than was true before their principals and superintendents were supposed to have "jumped the rails" and to have begun in earnest their alleged neglect of intellectual training. In all of his voluminous criticisms of the public secondary schools, Professor Bestor has steadfastly remained silent about certain factual studies of whose existence and findings we can be confident he is well aware. One of these was made at his own University. It compared the academic grades made there by the combined entering classes of 1935-36-37 with those of the entering class of 1949 (of whose 1,819 members only 83 were veterans—men more mature and presumably more highly motivated than their younger classmates). The 1949 freshmen made higher average marks in every division of the University (see *College and University,* October, 1951). Another pertinent study which presumably is known to Professor Bestor and about which he also has remained silent was conducted for USAFI by the official Recorder of the University of Chicago. He renormed the USAFI high school tests in English, mathematics, science, and social studies by giving them in 1955 to the senior students in a representative 5% sample of all the public high schools in this country. This had been done with exactly the same test in 1943. The 1955 seniors made higher average scores on each of these tests than the 1943 seniors had made, with the greatest difference in performance being on the test in mathematics (see *School Review,* March, 1956). We can also be confident that Professor Bestor knows that the College Entrance Examination Board has found no decline in the quality of entering college students when compared with those of a quarter of a century ago (see *Changing Times,* June, 1954), but he has given no hint of this circumstance in any of his published critiques.

Running through much of Professor Bestor's polemic is the idea that youngsters who lack the innate capacity to do rigorous work in advanced courses in science and mathematics, and in the other subjects of general education no less, should either be routed at an early age to what he called an "inferior" secondary school, or that they should be flunked out if such a second-class school is not established for them. This proposal is antithetical to the educational requirements of a classless society. In our view, it has but

three features that are desirable: it would assure that only the more capable students enroll in the advanced subjects required for successful college work; it would enable these courses to be made rigorous; and it would provide the more gifted pupils with competition suited to their high capabilities.

Scholars and professional educators alike are agreed that these are conditions which must be provided if our gifted youths are to be served as well as their needs and those of society require. But we believe that the scholars and professional educators who have joined forces in attacking this problem have a far better proposal, one that is fully consistent with the requirements of a classless society. Actually, this has gone well beyond the proposal stage in that many public schools have already traveled some distance down the road these scholars and professional educators would have them go.

The educators in charge of these schools believe with George Stoddard that the only sound answer to the Russian threat is "to push to the limit our own democratic ideal of developing the total resources of every person" and with William Benton that "A deep faith in man is the total opposite to the Soviet system which offers a vast technocratic Sparta. By our standards, their system is more like animal training than the education of human beings.... It is the state-take-all and let the individual take the hindmost."[9] These American educators also believe that all kinds of giftedness, not just in science and mathematics alone, should be cultivated to the full. They know that youngsters gifted in one respect may be of but average or even mediocre capacity in other respects, hence that to set up superior schools relating to any given species of giftedness is to range the pupils in these schools from high to low so far as the other kinds of giftedness are concerned. Their belief, then, is in the comprehensive high school within which they arrange different tracks, as it were, for each subject area, with each pupil scheduled in terms of his best fit respecting each subject. A student properly scheduled in the classes for the gifted in science and mathematics might be scheduled with equal propriety in the classes for youngsters of average or less than average capacities in other subjects. And so it might be in respect to art, music, English, or any other subject that could be named.

Excellent descriptions of how this has been worked out in respect to science and mathematics, the subjects around which most

[9] *Current Issues in Higher Education*, 1956, National Educational Association Washington, D. C., 1956, pp. 39, 41.

of the Sputnik-induced fear centers, will be found in the accounts which have been published of the programs which were developed in the Forest Hills High School, New York,[10] and the Evanston Township High School, Illinois,[11] long before Sputnik was placed in orbit. The joint work of scholars and professional educators which is going on at Massachusetts Institute of Technology in the field of science[12] and at the University High School of the University of Illinois in mathematics,[13] both pre-Sputnik undertakings, is breaking new ground and gives every promise of revitalizing the teaching of these subjects in the high schools of this country. But no hint of any of these developments, or of others that could be mentioned which also antedate Sputnik, is to be found in Professor Bestor's tirade. None can be squared with his devil theory of causation.

The going programs in Evanston and Forest Hills are superior examples of the kinds of programs found in many public secondary schools. These programs provide an excellent general education in science and mathematics (and in the other subjects no less) for all youths whatever their capabilities may be, and afford the students who are gifted in these fields of study truly superior advanced work which not only fits them well for rigorous and thorough college training in these subjects, but enables many to win advaned standing when they matriculate—all without aping in the least the Russian or European systems with their negations of values which Americans hold dear.

[10] Paul F. Brandwein, *The Gifted Student as Future Scientist*, Harcourt, Brace and Company, New York, 1955.

[11] Evanston Township High School, *Here's Your High School*, Evanston, Illinois, January, 1958.

[12] Elbert P. Little, "From These Beginnings," *Science Teacher*, 24: Nov., 1957, pp. 316-19.
Francis L. Friedman, "A Blueprint," *Ibid.*, pp. 320-3.
Jerrald R. Zacharias, "Into the Laboratory," *Ibid.*, pp. 324-6.
Gilbert Finlay, "What Are the Questions?" *Ibid.*, pp. 327-30.

[13] UICSM Project Staff, "The University of Illinois School Mathematics Program," *School Review*, 65: Winter, 1957, pp. 457-65.

American and European Secondary Education

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NEVER since American secondary education had its beginnings in Boston in 1834 has there been so much discussion of its strengths and shortcomings as at present. From relative indifference the American public has turned to a vital interest in this institution—so much so, indeed, that newspapers and lay magazines are filled with criticisms of and prescriptions for the high school. Even a retired admiral has felt the urge to propose a panacea. Unfortunately, many of these lay critics and reformers know very little about the American secondary school. And those who make comparisons with secondary institutions abroad not infrequently know even less about education in other countries. Here a little knowledge of comparative education can be a dangerous thing. And making generalizations about American and European secondary education upon the basis of observing the performance of a limited number of graduates is equally dangerous. One is reminded of the little boy who wrote, in his third grade essay about Indians: "Indians always walk in single file; at least, the only one I ever saw, did."

A comparison of American and European secondary education might well shed light upon some of our contemporary problems, but much more depth and breadth in the comparison should be sought than is usually the case.

I

We speak of the American secondary school as if it were a single institution, of a single type. Actually, there is no such creature as a typical secondary school in America, for our decentralized system of education, our peculiar traditions and sociological factors have resulted in our having a wide range of institutions all under the umbrella of "secondary schools." Let us examine the diversity. We have public secondary schools, which enroll approximately 90% of the students in secondary education, and private ("independent") and parochial institutions which enroll the remaining 10%. In each category, we have a wide range in size of schools. The pub-

lic schools have the largest range in size, from schools of less than ten to schools of more than 5000 pupils. The average enrollment is approximately 200. The author once made a trip half way across Nebraska to give the commencement address to a graduating class. The platform was occupied by the superintendent, the chairman of the board of education, the pastor who gave the invocation and benediction, the speaker and the graduating class. And altogther only five chairs were needed. The whole town turned out for the gala occasion, for this was the first time in three years that there had been a graduation. The solitary graduate was president, vice president, secretary, treasurer, salutatorian and valedictorian of the class. In fact, he was the class. The superintendent taught all the high school subjects and his wife taught the whole elementary school. Their apartment was in the basement of the school building. In contrast to this little school, we have huge educational factories which operate more or less on the assembly line basis, with more than 1000 graduates a year.

There is just as much variety in the various curricula offered. Some schools are so small that they can offer only a very small number of standard, traditional courses. Often these are given by teachers who have inadequate background in the subjects taught. This is particularly true in those states which do not require at least 18 hours of college preparation in the subject taught. And 18 hours is a pathetically small amount. In Pennsylvania, for example, one can obtain a college provisional certificate, valid for three years, to teach science upon the basis of 18 semester hours of credit spread over chemistry, physics and biology (both botany and zoology). This certificate is made permanent upon the completion of three years of "satisfactory" teaching and six additional semester hours of work, which is not necessarily in the sciences. It should be borne in mind that some states issue general licenses covering all high school subject fields, and that even in states that now restrict licenses to fields in which special preparation is made, there are still many teachers who obtained such general licenses years ago. The writer, for instance, holds permanent certification to teach any high school subject in New York and in Michigan. Presumably he could legally meet classes in home economics, Latin, physics and chemistry, if he could find a school foolish enough to engage him to teach these subjects.

At the other end of the scale is the large, cosmopolitan high school with nearly as many subjects offered as the five-and-ten has

variety of merchandise. In these schools, much guidance is necessary to fit the student into a proper curriculum. Few constants are required of all students, and so great a variety of courses is offered that a diploma carries little guarantee that the various holders have had any common curricular background.

When one surveys all the subjects taught by all the secondary schools, one literally opens a Pandora's box. The United States Office of Education reported, in 1950, that thirteen major study fields were offered, and that these thirteen fields were broken down into 274 specific subject titles. Not all these subjects were offered even in the largest schools, of course; and some were offered in very few. For instance, only 185 students studied calculus; 227, first year Greek, in only four states; six, fourth year Greek; 320 Portuguese, and 172, Norse.

Though the typical secondary school in the United States is coeducational, we have secondary schools for boys and secondary schools for girls, in all three types of institutions—public, private and parochial.

Some of the secondary schools are rural, some in small cities, and some in urban areas. In some states, there persists a segregation on a racial basis. Some of the buildings are so inadequate that students go to school in shifts; in other places, the high school dominates the landscape of the countryside as did the cathedral and the castle in ages past. We must conclude, then, that secondary educaton in America possesses great variety.

II

In spite of all these differences, however, there are also many similarities among these schools. Though there are important differences, we must remember that a student can transfer from private to parochial to public school with a minimum of difficulty and with little, if any, loss of academic credit. Likewise, one can move from any section of the country to any other and soon find his place in a new secondary school in his new community.

The similarities of these schools result from their springing from a common tradition, from their usage of standard textbooks which have national circulation, from the fact that the teachers come principally from liberal arts colleges or teachers colleges, from the standardizing work of the state departments of education and the great regional accrediting agencies. Despite the diversity of kind, size, control and clientele, these other factors have done much to make our secondary schools remarkably alike.

The fact that we have a common culture in the United States adds to the likeness of our schools. Though we are a people of diverse races, colors, creeds, cultures and national origins, we are all subject, to a large degree, to pressures which tend to blunt the cultural differences. The fact that children of recent immigrants become "Americanized" in a short time demonstrates that cultural differences tend to disappear or to remain only as vestigial elements. The third generation of an immigrant background frequently knows not the language of its grandparents.

III

Between America and Europe, there is a difference of opinion of what constitutes a secondary education. Even in America, there is not whole-hearted agreement. Europeans and tradition-minded Americans regard secondary education as the educational experiences, usually during adolescence, which follow and are built upon the completion of a sound program of elementary education. They regard secondary education as high-caliber learning of "respectable" subject matter in the liberal arts—languages, both native and foreign, both modern and classical; mathematics, science and history. Indeed, in Europe, the secondary school is *the* liberal arts institution, and the graduate is expected to have completed his liberal and general education, for he goes to the university immediately for his specialized or professional education.

Under this traditional definition, the kind and degree of education is emphasized. Rigidly interpreted, an adolescent who has not mastered sufficiently the fundamentals of elementary education and who is not now engaged in the serious pursuit of the liberal arts would not be considered to be enrolled in a secondary school. If he were in a technical, non-academic or life-adjustment type of program, his education would be held to be post-elementary, not secondary.

A newer (though not necessarily better) point of view regarding the definition of secondary education has crept upon us in the United States. Espoused by those who hold that any subject is of much value as any other subject, that it is a terrible crime against childhood and adolescence to retard a pupil, that every child (irrespective of his interests, abilities, aptitudes or gumption) ought to progress orderly through the school a grade per year until he has achieved a high school diploma after twelve years of sitting, that in a democracy every child must have the reward and that it is

essentially undemocratic to deny a secondary education even to our intellectually lame, halt and blind—espoused by all these people, the newer conception of secondary education is that secondary education is the schooling of all adolescents who have reached a certain chronological age, usually twelve years. The emphasis is upon the *age* of the pupil, not upon the *subjects* he has mastered or is now studying.

In America, then, under this second definition, the life-adjustment program advocated by Prosser Douglass and a host of others must be regarded as worthy of inclusion in the secondary school. By the same token, those who adhere to the more traditional definition (Bestor, Lynd, Mortimer Smith) would reject much of what the high schools teach as being unworthy of a secondary school.

Here is the crux of the difficulty in American secondary education. Obviously our definition of secondary education and our philosophy of secondary education which grows out of this definition will determine, to a large extent, what we do in the American high school. Parenthetically, the writer would like to suggest that much of our contemporary confusion in American secondary education is due to the fact that we do not, as a people, have a consistent philosophy of education. We have many different philosophies clamoring for recognition, and until we have made a choice among them or have worked out a synthesis among them, we shall hardly know *what* to teach, *how* to teach or *whom* to teach, and we manifestly will not know *for what ends* we teach.*

Perhaps out of the present wide-spread public discussion of secondary education will evolve a certain concensus as to the purposes of the American high school.

IV

Whatever may be its shortcomings in quality, the quantitive aspect of the American secondary school is phenomenal. From 1890 when only 6.7% of all persons between the ages of 14 and 17 were enrolled, we have advanced to an enrollment of 84.5% of persons between those ages. In contrast with the European concept, our secondary school has long since ceased to be an exclusive institution for the education of an elite. Rather, it is a logical upward extension of the common school. We cannot here develop in sufficient detail all the sociological factors which have enabled us to pile up this quantitative record, but it is impressive when we

* The writer discusses this point more in detail in his *American Secondary Education* (Odyssey Press, New York, 1957), particularly in a chapter entitled "A Philosophy of Secondary Education."

recall that perhaps half of the world's present population (estimated at 2,500,000,000) is illiterate.

Among the factors which have committed America to secondary education for all are these: humanitarianism, our high standard of living and economic surplus which has enabled us to support our adolescents in leisure, the sense that democracy depends upon a wide extension of education beyond the elementary level, the large share of local control over the school program, the extreme desire of each generation to have its children endowed with advantages beyond its own reach, restriction of child labor and a profound national faith in education—perhaps too naïve a faith.

V

Until recent years, the Europeans knew exactly what they meant by secondary education. Secondary education was a system of schooling reserved for the intellectual and social elite, with some opportunity extended through charity or public grants for adolescents of exceptional ability from the lower social and economic classes to lift themselves by their bootstraps into this more favored element of society.

The European secondary schools were greatly influenced by the educational traditions established in the Renaissance. Since so much of the best thoughts of the most learned and accomplished masters of antiquity and even Renaissance society was written in Greek and Latin, naturally the Renaissance secondary schools emphasized a study of these ancient languages. The very names of European secondary schools reflect this indebtedness to antiquity. *Gymnasium,* the German name for the classical secondary school, comes from the Greek institution where young Greeks took their physical exercise naked and then engaged in philosophical discussions after the exercise period. (Perhaps the highest type of locker-room conversation ever known to the race of man.) The French *lycee* is named for the Lyceum, where Aristotle taught. The English and Early American *academy* is named for the place where Plato taught. Variations of these names, transposed into other European states, reflect the classical traditions of European secondary education.

As long as Europe held close to its classical background, and as long as the peasants and bourgeoisie could be held down, the classical secondary school was triumphant in Western Europe. To a large extent, it still is, for it has a powerful tradition and a proved

record of intellectual achievement. Furthermore, we are led to believe that European society accords more prestige to the intellectual than does American culture. The writer recalls that his European students, fresh from the Netherlands, Poland and Czechoslovakia, clicked their heels and bowed in his presence; in fact, it took them some months to become so Americanized as to wave and shout "Hi!"

The spirit of democracy, let loose by World War I and World War II, partly breached the wall of the traditional European concept of secondary education. Under the Weimar Republic, the establishment of the *Grundschule,* a three-year elementary school for all classes, was a sign of the new thought. In Britain, the insistence was heard that the hitherto-deprived classes must have an opportunity at secondary schooling, either through public (in the American sense) council schools or through admission to the traditional public (i.e., private) schools by grants in aid. In France, there was a clamor for *l'ecole unique;* that is, a common school. At present, Britain is experimenting with a cosmopolitan secondary school not too different from the typical urban American high school which offers several curricula.

While an American can rejoice at the extension of secondary schooling to European boys and girls to whom it would have been denied in past generations, we might well be tempted to warn the Europeans that there are dangers in the concept that every adolescent should be in secondary school. We should, at the same time, recognize that many Europeans are not satisfied with their rather highly restrictive system and are moving closer to American practice.

VI

Education for all it a great American ideal. Perhaps, as a slogan carved in granite over an entrance to the Pennsylvania State Education Building indicates, it is America's greatest contribution to civilization. It expresses the idealism, the optimism and the nobility of American democracy. It is a marvelous concept. But some of us who have lived and taught through the last three decades have reservations and, in our more perplexed and despondent moments, wonder sometimes whether this may not be too naïve a faith—a faith motivated by the best intentions and the noblest purposes, but a faith that loses touch with the reality of human nature. We sometimes wonder if we may not have drunk too

deeply of the heady wines bottled by Condorcet who ardently espoused the concept of the indefinite perfectibility of man.

Certainly we have enrolled in our high schools this year many young people who are not achieving, even within the most generous and sympathetic evaluation, anywhere near enough to justify their idleness or the expense to the community and state. This sad condition is due to one of two facts: They do not want what the school offers or we do not offer what they want. There may be another factor: They may just want nothing that a school could conceivably offer them.

We may have great sympathy with those pupils of limited ability who try hard and do not have a real measure of demonstrable success. It is harder to be sympathetic with those who have ability and do not use it. To promote the latter and eventually to give them diplomas compounds laziness and teaches the dishonesty of a reward without effort. Admittedly, in the unique experiment of attempting, for the first time in the history of civilization, to make a high school education available to all youth, we have made mistakes. Let us not be ashamed of these errors and let us not apologize too abjectly for them. But let us not continue making them and concealing them. The recently reported action of certain Canadian high schools and at least one Massachusetts school in dismissing persons of ability who did not perform should be watched with interest. Perhaps the time has come for us to declare that the opportunity for secondary education shall be open to all but that pupils will be dismissed when the point of diminishing returns sets in.

The school is more than a custodial agency. As long as a pupil learns anything that is of value to him and to society, he should be retained, but we ought not to retain non-performers just to keep them off the labor market or to exercise our humanitarianism. Just as Captain John Smith is supposed to have said "Those who don't work, don't eat," we might well say "Those who don't learn, don't stay." Revision of compulsory attendance laws and child labor laws may be necessary.

Society has no right to expect the school to be primarily a custodial institution, with baby sitting as its objective. If there must be custodial institutions, let us set them up outside the high school or let us build a system of national deep freezes to store our surplus non-learners until they pass the compulsory school age. We have a precedent in the storage of surplus butter and cheese in the

caves of Kansas and in the payment of federal subsidies to farmers not to produce agricultural products.

VII

A nation which has been relatively complacent regarding its secondary education became most alert when Sputnik I and Sputnik II began orbiting around the earth. We were reminded by countless newspaper and television commentators that the Russian secondary school student has a longer and more extensive background in mathematics and the sciences than the American counterpart. The fact that 40% of our secondary schools offer little or no science was reported in such a way as to imply that 40% of American high school students received little or no instruction in these fields. Two facts were not mentioned: first, these 40% of American high schools are small institutions which enroll proportionately few students; second, the Russian secondary school is a selective and competitive institution, whereas the American school enrolls almost all youths of high school age.

We must recognize, however, that many boys and girls who could study science and mathematics with profit are lulled into a false sense of security by being permitted to take "snap courses" and watered-down "life-adjustment" programs. When psychological studies appeared to blast the foundations of mental discipline and transfer of training, some educators concluded that all subjects were of equal importance, and neglected what were long considered to be the fundamental constants of the school program.

There is a present danger that we may irrationally swing to the other extreme of the pendulum and insist upon a rigorous exposure to a strong program of mathematics and science for all adolescents. Such procedure could be little less than tragic for we do not now have a sufficient supply of competent teachers in these fields to teach all the more than ten million pupils now in our secondary schools. When Mrs. Wiggs' children brought guests home, she stretched the soup by putting water into it, but it would be precarious to water down our teachers of mathematics and science by suddenly retreading teachers of other subjects. Having once been taught French by a retreaded teacher of German, the writer is dubious about the quality of teaching that would result.

Undoubtedly, a higher percentage of our students could profitably study mathematics and science, but we would scarcely care to have repeated here some of the shoddy teaching that characterized

Russian teaching in the 1930's, as revealed by emigre writers in *Soviet Education.***

VIII

At the risk of alienating some of his fellow professors of education who have drunk deeply and perhaps unwisely of the wines of progressivism and at the risk of being accused of going to bed with Bestor, the writer ventures to suggest that the time has come to restore to the American high school a greater degree of intellectual content, at least for students of average and superior ability. Homogeneous grouping in academic subjects seems indicated. Students who can perform well must be expected to do so. Essay writing must again be cultivated, and the objective examination, whose chief merit is a quick get-away for the teacher, must be reduced to its proper subordinate place.

At the same time, the remarkable progress we have made in understanding the less academic pupil and in inducting him into as much of our culture as he can take must be preserved. Contrary to the traditional European practice, we must teach more than the intellectual aristocracy.

A fundamental presupposition is the idea that we must teach our society that intellectualism must not be suspect and that academic excellence should be encouraged and rewarded at least as much as excellence in other fields—athletics and social adjustment, for example. Unfortunately, the tone of our society and of our schools is such that some students try not to excell lest they be considered maladjusted and "squares."

Firm standards but not the ruthless elimination of those who have academic difficulties is a prescription. A colleague of the writer, Dr. Hagen Staack, has called to his attention something which he has never seen in print and something which is pertinent here. Of the sixty leading Nazis who surrounded Hitler, very few were university graduates. Most of them, like Hitler himself, had been educated enough to despise the lower classes but not enough to be acceptable by the established ruling class. They were frustrated semi-intellectuals who felt a dep resentment against those who had succeeded in the *Gymnasium* and university. Too rigid an elimination of pupils from American secondary schools and colleges might well promote social unrest in our republic, for it is psychologically defensible to strike out, even blindly, if one feels unjustly treated.

** *Soviet Education*, edited by George L. Kline. Routledge and Kegan Paul, ltd., London. 1957.

On the other hand, there is no justification to water-down the content for the superior students to match the pace of plodders, and there is no justification in forcing a pseudo-education upon those who will not or cannot profit from it.

IX

Comparative education is a most valuable study in the preparation of teachers. Traditionally, some comparative education was formerly included in the undergraduate preparation of teachers, usually in a course in the history of education. Unfortunately, we have become so obsessed with the psychological aspects of education and with pragmatic "how to do it" courses that we have neglected the historical and comparative aspects. Without the perspective of history and philosophy, many of our present high school teachers become so engrossed in their day-to-day procedures that they never attempt to build a personal philosophy of education. An intensive study of our historical development and a comparison of our educational traditions and present procedures with those in other leading nations would undoubtedly be a rewarding experience. Even secondary school administrators might well lift their eyes from the sale of bus tickets, from the wrangling of the local interscholastic league and even from the inventory of audio-visual aids to consider the principal functions of the secondary school. They might well ponder these questions: *What* shall we teach? *Whom* shall we teach? *Who* shall teach? *How* shall we teach? *For what ends* shall we teach? A study of American secondary education in comparison and contrast with European philosophies and procedures would be helpful in the development of a perspective. It might make us more perceptive in working out a program of American secondary education for the remainder of our century.

What's Right with the American High School?

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THE *main thing that's right with the American Public high school is that it exists.* Don't laugh; this first sentence is not a commonplace. The American public high school, established as a legal part of the American school structure in 1874, has existed as a significant social institution only since the turn of the century, when 519,251 students or 7% of the age group were enrolled. In the historical moment of merely sixty years it has grown to a colossus enrolling about 7 million pupils, ages 14 to 17, or 70 to 80% of the potential age group. Its size alone does not make it significant, unless that size is the symbol of real service to American democracy.

The American common school system, a free upward school path with no artificial barriers extending from the kindergarten through the university, has been named as one of the genuinely creative contributions to world social institutions. The implications of the development of atomic power, either for total destruction or as an unlimited source of energy to bring abundance for all, are revolutionary, but in a sense, no more revolutionary than the idea that all human beings are valuable and that social progress lies in the freedom of each individual to develop to his maximum potentiality. This dream, tested in the laboratory of the young United States, is today one of the major goals of the peoples of the world. Conservative democracies such as England, young democracies such as India, and countries barely out from colonial domination are alike turning to the American comprehensive high school as the kind of institution through which their people can realize their aspirations. This school, inheriting the intellectual traditions of Europe, as well as the practical emphasis of the American academy, has become a unique instrument of democracy.

In evaluating the American high school, then, it must first be looked at for what it is—an institution open to all the children of all the people. Our task of judging the high school is complicated by the fact that the strengths of the school are inseparable from its weaknesses. Our schools have been so open that they have indeed

attracted those who would rather sit than work; our compulsory attendance laws have kept in school the scoffers and the delinquents as well as the scholars. Differences in reading ability range from fifth to fifteenth grades; abilities from dull to genius. Some of these youngsters have little interest in cultural studies and many do not have the ability to master abstract concepts. Our schools have attempted to meet the needs of all, for these children of ours have at least two things in common—they are all, or almost all, citizens of our country, and they all have "gifts." Teachers of our high schools have been attempting, not to teach gifted children, but "to help each child find and develop his gifts," to borrow a phrase from a recent pamphlet.[1]

Mary Antin looks at the open school with the eyes of a European. In *The Promised Land* she tells how, on her second day in this country, a neighbor girl from across the alley came to take her to school. This child who had never seen us until yesterday, who could not pronounce our names, who was not much better dressed than we, was able to offer us the freedom of the schools of Boston! No application made, no questions asked, no examinations, rulings, exclusions, no machinations, no fees. The doors stood open for every one of us."[2] We take these things for granted, but the rest of the world does not.

The thousands of tiny high schools enrolling less than one hundred pupils do not at first glance look like one of the strengths of the American high school system. Their offerings have been narrow, their resources few, and their teachers spread thin. And yet, these schools too have made major contributions because they brought further education close to pupils, because teachers and pupils were close together. Many an artist and statesman has enriched American life because of the open door of a small high school and the encouragement of individual teachers.

Let us look back then, at what our high schools appear to have contributed in the short space of our national life. As Henry Steele Commager points out in a Life editorial, October 16, 1950, their first task was "to provide an enlightened citizenry in order that self-government might work." Our people have made self-government work. They have made honesty in public office the accepted ideal; they have never yielded to a dictator; they have survived with amazing resiliency the impact of mass media, often controlled by

[1] Association for Childhood Education International, *All Children Have Gifts*, 1957.
[2] Mary Antin, *The Promised Land*. Boston and New York: Houghton Mifflin Company, 1940, 186.

special interests; and they have been sensitive to attacks on freedom. These statements are basically true, we think, in spite of historically momentary and spotty lapses. Our people have learned government by concensus and by compromise, except in one national crisis prior to the general establishment of public secondary schools. The power of the American people has many times been exercised unwisely, but no one, especially our elected officials, has any doubt about where the real power lies. A free people must be an educated people, and we owe our freedom to educational opportunity beyond the elementary level.

The second big task of our schools was to create national unity. One is amazed that the "more perfect union" of 1789 was even attempted, and still more amazed that that union survived the mass waves of immigration and the sectional, geographical differences that the later years provided. Was it luck or the high social improvisation of American democracy which produced the high school at the time of our great mass immigrations of non-English speaking peoples? One after the other, groups such as the Irish, the Italians, Poles, Orientals, and now the Puerto Ricans have come in great waves. Each group came at the bottom of our social ladder; each has in this people-centered country, reached out for the open doors of education, and each has contributed leadership to our national life. True, our society today exhibits prejudices and discriminations toward various ethnic, racial and religious groups among us, but surely these are less because we went to school with our grocer and our bus driver as well as with our surgeon and our lawyer.

Here again, an overemphasis on athletics is an undoubted weakness in most high schools, but oddly enough, even this weakness adds partly to the picture of strength, for the athletic field is one laboratory where acclaim for accomplishment is almost wholly divorced from color or the ancestry of one's parents. This openness in our schools is being gradually realized in increasing openness of vocational opportunity.

Historically, then, we owe much to our high schools. But historical success alone will not justify any social institution. How well do our high schools serve the needs of today, and the future? To meet the widely varied needs of their students, most high schools have developed many different curricula and combinations of curricula. In addition to their common function of preparing young people as citizens, they attempt to prepare them for higher education and for careers at various levels of skill in business,

manufacturing and agriculture. In addition, many schools have guidance counselors whose function is to help young people with their problems of growing into maturity, and with making wise choices of educational programs and vocations. How effective are these efforts?

The sharpest critics of today charge that the "omnibus" high school is failing to prepare students adequately for college.[3] They would have us return to the philosophy at the turn of the century and accept as our major task the preparation of a select group for college. Strangely enough, we can offer more proof of doing a commendable job here than the ideal of the critic, namely, the private school. The 1953 test scores[4] of private and public high school seniors who took the College Entrance Examinations Board tests revealed that the public school students received the higher mean scores on 7 of the 9 tests given. On three tests the differences were negligible; but in the two areas, physics and mathematics, where the public high school is supposed to be falling short in this age of atomic energy and sputnik, the public high school showed marked superiority.

Studies completed at Yale, Harvard, and Princeton substantiate the fine performance of the public high school is doing in preparing for college. The records of the Phi Beta Kappa headquarters give further proof of this accomplishment. At Harvard, Yale and Colgate a greater proportion of public than private school graduates were initiated into the society, even though more students had prepared in private schools.

An example of the large comprehensive high school achieving a remarkable record for its work is George Washington High of San Francisco.[5] For five consecutive years it has received the Award of Merit Scholarship Certificate from the University of California for the highest grade point average by its graduates in the University. One remarkable aspect of this record is that the school is a melting pot of races and nationalities. It consists of Scandinavians, Chinese, Irish, Polish, French, Negro, Japanese, German and Greek. The religious division is one-third Protestant, one-third Catholic, and one-third Jewish. From this high school repre-

[3] Rear Adm. H. G. Rickover, USN, "The Education of Our Talented Children." An address given at the Seventh Institute of the Thomas Alva Edison Foundation, November 20, 1956, published by the Thomas Alva Edison Foundation, Inc., February, 1957.

[4] For details, see David Irvamato, "Don't Snear at Public Education," *N. E. A. Journal*, 47: 117-18, Feb., 1958.

[5] Francis V. Rummel, "How He Makes Scholarship Popular," *National Parent Teacher*, 52: 8-9, March, 1958.

senting all racial and socio-economic levels, over 70% go on to college with outstanding success.

From defending our high schools as to their preparation for college bound students we move to the more difficult task of determining their effectiveness for that 80% of the student body who do not go on to college. This includes the group that are placed in vocational curricula or sent out to work under a selective educational program. We can point to certain social and economic advantages on the high school diploma and to social values of continued holding power of the American high school. While a high school education for their children has become the ambition of parents of all economic classes, the greatest per cent of drop-outs from our present day school is from the lower level of academic ability and lower economic classes.

Many of the non-academically oriented students choose the vocational curricula. Follow-up studies on students in these fields show that 50 to 70% of the students tend to find work in the specialty for which they were trained and are better satisfied with their jobs.[6] The economic advantages of high school training was shown by higher initial pay and also higher wages five years later.

With the advent of automation more specialized training even beyond the high school will undoubtedly result. 1957 marked the turning point at which the "white collar" workers exceeded in number the "blue collar" workers. Technicians are needed in medicine, industry, and service. The growth of the community college terminal program is an educational reflection of this economic need.

If we can agree that the American high school is a social "invention" that grew out of and satisfies a basic value of democracy—faith in the power of educated people to make wise decisions, then our way is clear. Effective high schools have always been sensitive to social need and our broad curricula are evidence of the ability of the high school to change in response to that need. Our high schools will change; they will improve their teaching where needed. They will achieve and maintain balance in their curricula as they keep their sights firmly placed on the goals of education for all American youth.

[6] *Research in Industrial Education*, Summaries of Studies 1930-1955. U. S. Department of Health, Education and Welfare, Vocational Division Bulletin No. 264, 99-112.

The Contributions of the American High School to National Life

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The American high school is so much a part of the tradition and culture of America today that most citizens as well as educators take it for granted and accept it as one of the blessings of living in this country. We are all indeed proud of the high schools that dominate practically every community in this vast nation, yet all too infrequently do we appraise carefully and definitively the role which the high school has played and should play in American life, with the result that we do not always recognize the significant contributions which it has made to the culture of our society.

The American high school of today is the product of social experimentation and educational innovation that has occurred periodically since the first settling of the American colonies. It has evolved as an expression of a basic philosophy and a concept of the role public education should play in American life and the contributions it should make to the realization of the American dream. We are now engaged again in one of these periods of intense evaluation and inquiry into the nature and function of our educational institutions, such as concerned Benjamin Franklin when he proposed the founding of the American academy, or characterized the work of the Boston School Committee when it founded the American high school in 1821. But in our concern for the development of even better programs of secondary education for all the youth of America, it is well that we first inquire into the historic traditions of secondary education in this country and make a penetrating analysis of the contributions which secondary schools have made and continue to make to our culture.

THE CONTRIBUTIONS OF THE AMERICAN HIGH SCHOOL

1. *Providing a System of Universal, Free, Public Secondary Schools Open to All American Youth.* This is, of course, one of the principal characteristics of American secondary education. In no other country of the world, except England only since 1944, is there a system of public secondary schools for all youth of the nation. If we can rely on the published reports, even Russia has not

yet been able to provide a universal system of secondary schools for youth throughout that vast nation.

The Educational Policies Commission has stated succinctly our national interest in education:

> The American people, perhaps more than any other people of history, have long believed in the general beneficence of this process (organized education). They are fond of regarding universal education as one of the most characteristic expressions of their genius. . . .For generations they have led the world in equalizing educational opportunities and particularly in opening the doors of secondary and higher institutions to all desiring and able to attend.[1]

2. *Enabling All Youth to Benefit From the Opportunities and Privileges Available Generally to Citizens in This Country.* This is a corollary of a free, universal system of secondary education; but it is an essential aspect of the contributions which the American system of secondary education has made available to the citizens of this country. The American high school is the instrumentality whereby youth from every home and in all regions of the country, regardless of whether they may live in isolated rural areas or densely populated city areas, may obtain an education that enables them to seek a level of vocational, social, political, and creative endeavor commensurate with their abilities and talents.

A careful evaluation of systems of education in all of the countries of the world shows that it is only in America that every youth, regardless of his talents, capacities, and native abilities, or his station in life, has the same privilege as any other youth to pursue a course of study through the secondary school level. Even in Russia, although secondary education is free and universal except in isolated rural areas where they have not yet been able to establish a complete system of secondary schools, the individual youth himself is greatly restricted in his opportunities to obtain a secondary education. In the first place, students are eliminated in large numbers if they do not measure up in achievement and attainments to what is expected for each level of schooling; and, secondly, the pupils are directed, rather rigidly, into areas of study that officials of the state deem essential for the welfare of the country.

In England, students of secondary education well know about the "11-plus" examinations which determine the secondary school track open to English boys and girls upon completion of the elementary school. Only a small proportion of the youngsters are per-

[1] Educational Policies Commission, *The Education of Free Men in American Democracy* (Washington, D. C.: National Education Association, 1941), p. 43.

mitted to enter the prestigous, academic grammar school; and all others are shunted into either the modern school or the technical high school. The doors of opportunity open wide for the small select group that are admitted to the academic grammar school but become closed in many "black coat" occupations for those who are compelled to go to the second-rate secondary schools.

In the continental countries of western Europe, secondary education of any kind is drastically restricted, with only a select, chosen few, usually not more than 15 per cent of the youth population in any of these countries and much smaller in a number of them, being permitted even to enter the secondary schools. Many of these are eliminated during ensuing school years. For most youth, the future is indeed bleak; and they are doomed by the structure of the educational system to a lifetime of hopelessness and mediocrity. Arthur J. Olsen, in a special dispatch to the *New York Times* states the situation from the point of view of the ordinary citizen:

> Under the German educational system, a child's ultimate place in the economic and social system is almost irrevocably chosen for him at the age of 10. This is the age at which he finishes the four years of primary school that all experience. Before him lie three avenues of schooling, each leading to a definite niche in society.[2]

The contribution which the American secondary school has made to American life in opening the doors of opportunity for all youth was well-stated by the Committee for the White House Conference on Education, appointed by President Dwight D. Eisenhower:

> . . . .the schools have become the chief instrument for keeping this Nation the fabled land of opportunity it started out to be. . . . Schools free men to rise to the level of their natural abilities. . . . The schools stand today as the chief expression of the American tradition of fair play for everyone, and a fresh start for each generation.[3]

3. *Providing Opportunities for All Youth to Develop Their Individual Potentialities and Capabilities.* Again, this contribution of the high school to American life is closely related to the previous two, yet this statement epitomizes the philosophy of democratic education that has evolved in this country through our 300 years of educational development. Certainly, one of the primary, if not

[2] Arthur J. Olsen, "Educational Tide Ebbs in Germany," *New York Times*, March 16, 1958, page 28.

[3] The Committee for the White House Conference on Education, *A Report to the President* (Washington, D. C.: Government Printing Office, 1956), page 4.

the chief, function of secondary education in this country is to develop the individual in terms of his own abilities, talents, and capacities.

A nation could have a system of universal secondary education, yet not permit the schools to contribute freely and fully to the development of each individual student. A critical analysis of Russian education, for example, reveals how a nation can develop universal secondary education, yet so control the program of the schools and regiment individual pupils to such an extent that fullest development of the capabilities of each student is denied arbitrarily and ruthlessly.

Schools in America do not exist to serve the state; they exist to develop individuals who will establish a system of democratic government which becomes an instrumentality for perpetuating the good life for all.

4. *Advancing Knowledge and the Cultural Life of the People.* By offering a broad program of subjects and activities and by opening its doors to every youth in the community, it is inevitable that the secondary school will enhance the cultural level of the people. The people of the United States as a nation have achieved the highest level of education in the history of the entire world, and it is evident that the general cultural level of the people as a group has thereby been advanced.

Scholars, statesmen, scientists, teachers, creative artists, and other people of great intellectual and creative attainments may come from any walk of life; and the free and unselective American high school has been the institution by which this great reservoir of scholarship has been discovered and nurtured.

5. *Producing a Unified, Enlightened, and Competent Citizenry.* Together, the elementary and secondary schools have produced a body of citizens that has been eminently successful in creating and maintaining a democratic system of government. The founders of the republic long ago recognized that democratic government would not flourish unless an educated citizenry controlled and operated the government. The American public school system has produced such a group of qualified citizens. The success of our democratic system of government and the advancement of America to a position as a great world power has been possible only because of the general competency and understanding of the citizens, the products of our secondary schools.

6. *Contributing to the Development of a Productive and Crea-*

tive Society. The productive genius of the American people is unprecedented and unknown in any other country of the world. Unquestionably, the secondary schools have contributed greatly to this accomplishment through their efforts in raising the general intellectual attainments of all youth.

7. *Developing Youth Who Are Self-Directive, Self-Disciplined, and Responsible.* A penetrating study of American youth in comparison with the youth of other nations would, I believe, reveal that our boys and girls exhibit to a significantly higher degree traits of character that we consider essential for living in a democratic society. American youth of the present day amaze most of us oldsters in their ability to accept and carry out responsibility, in the high level of self-assurance they possess, in their confidence in their own abilities and potentialities to face situations and solve problems that confront them in their daily living, and in their general ability to give direction and meaning to their lives day in and day out. Although we may at times be disturbed and disappointed by the behavior of a small proportion of our adolescents and young adults, I believe that any critical analysis of the situation would convince us of the truth of this assertion.

8. *Utilizing Teaching Methods Based on Research on Learning, Motivation, and Human Development.* A large body of research on the psychology of learning and human development provides a solid base for planning instruction. Most teachers in American secondary schools are quite adept at using methods which exemplify these principles. The modern secondary school is a challenging and exciting institution, made so by the skill, professional knowledge, and insight of a body of devoted teachers.

These, then, represent to me some of the significant contributions which the secondary school has made to American life.

What Is a Good Secondary School?

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IN RECENT YEARS there has been more negative criticism of secondary education than positive consideration of the question here posed. Yet it is obvious that there is no basis upon which to appraise secondary schools, nor is there a sound foundation upon which to improve their quality without a clear conception of what constitutes a good school. It is the purpose of this article, therefore, to consider first some of the realities that must be recognized in attempting to answer this question, and second, to indicate briefly some characteristics which all good schools should possess.

SOME BASIC CONSIDERATIONS

Taken as a whole the American people have always wanted good secondary schools. Youth have always deserved good schools. But the word "good" is intrinsically relative. It has no meaning except in terms of standards which are themselves relative. A high school is good, that is, it maintains defensible and high standards at a particular time, for particular persons, and for designated purposes. The history of education reveals with remarkable clarity the changing conceptions of what is a good secondary school. Viewed in retrospect, many of the Latin Grammar Schools of the Colonial period were good schools. Despite their limitations as now perceived, they were good schools for that period, for the small minority of youth of high school age who were accepted by them, and for the purposes which they served—chiefly that of preparing students for college and the professions. The vast changes wrought by the political revolution of the eighteenth century, the subsequent growth of commerce and technology, and the pressing demands for secondary schools more closely attuned to the realities of everyday life, these and many other factors contributed significantly toward the extension of educational opportunities, toward a broadening of the objectives of the secondary schools, and toward a vast expansion of the curriculum. They necessitated frequent re-appraisals of secondary school standards and practices, and accordingly, ushered in new conceptions of the good high school.

The goodness of secondary schools is relative also to the kinds

of students for which they are intended, and to the purposes which they serve. There are in the United States today approximately 23,000 secondary schools attended by more than eight million pupils. The vast majority of these schools are publicly supported, and are of the comprehensive type. They seek to meet the needs of a youth population which is widely diversified in interests, needs, and vocational expectancy. They vary greatly in the size of their enrollments, in the grades included, and in the nature of their curriculums. In addition to the comprehensive high schools, there are many private schools, technical and vocational schools, and special schools designed to meet the needs of particular groups of students, such as the gifted, the slow learners, and the physically handicapped. In terms of purposes some secondary schools are chiefly college preparatory institutions, while others lay special stress upon terminal education.

In view of the diversity of secondary schools from the standpoint of the kinds of students served as well as the purposes for which they exist, it is obvious that a good high school is never a stereotype; there are many different kinds of good high schools. Whether a school is good or poor or at some point between these extremes depends upon the extent to which it enables every student who attends to achieve his highest potentialities for intellectual, physical, social and moral growth and development. Such an interpretation of the good secondary school implies the necessity of standards, but more than that, it implies that although diversity is not only tolerated but encouraged, there is also unity, unity achieved through definable characteristics that all good schools have in common, whatever their size, type, clientele, or purposes. To these common characteristics attention will now be directed.

CHARACTERISTICS OF GOOD SECONDARY SCHOOLS

A good secondary school has definite objectives. Objectives serve as a focus for all of the educational activities of the school. They spring from two interacting forces, the needs of society and the needs of individuals. They are always rooted in the culture of the period and reflect the complex values of a civilization. They represent a hierarchy of values, ranging from the very general to the highly specific. Good secondary schools have thought through not only their general objectives, but also their more specific objectives, and the kinds of behavior dependent upon them. They distinguish clearly between those objectives which are the major

responsibility of the school and those shared with other agencies. They evaluate objectives carefully, giving high priority to some and less emphasis to others. They discriminate between the aims of education and the means by which these aims are accomplished.

Good secondary schools formulate and organize their objectives in various ways, but without exception they place great stress upon the intellectual, social and moral growth of every student. Thus they seek to help each individual to become increasingly self-directing through the mastery of the basic tools of learning, to achieve socially responsible and acceptable behavior in the home, school and community, to understand the contributions of science and mathematics to the development of modern technological civilization, to learn to be creative and to use leisure time wisely, to gain vocational competence, to develop and maintain good physical and mental health, and to build conscious values that are in harmony with democratic ideals. The quality of a secondary school depends upon the extent to which objectives such as these are attained.

A good secondary school provides a sound program of general education designed to meet the common needs of all youth. General education has as its central purpose the development of those common understandings, loyalties, abilities, and interests that are essential for the fullest self-realization of the individual and for intelligent citizenship. Thus it seeks to bring unity into an otherwise disparate and divisive curriculum. The achievement of the purposes of general education involves study and learning in the major areas of English, mathematics, the social studies, science, foreign languages, health and physical education, and the fine and graphic arts. That other areas can contribute richly is now quite generally recognized. Great variability exists among secondary schools as regards the areas that are included in the general education of students, and in the length of time that is devoted to study in the various areas. Comparatively few schools require the study of a foreign language, although many recommend it especially for college bound students. The majority of secondary schools require at least three years of English, two years of social studies, and one year each of science and mathematics. In the light of contemporary needs many secondary schools in recent years have raised their requirements, notably in the areas of science and mathematics.

Good secondary schools provide strong programs in general education. They are continuously studying the contributions of general education to the achievement of critically examined objec-

tives. They are deeply concerned with the problems of selecting the most meaningful and significant subject matter and of providing for vertical and horizontal continuity. Moreover, they give priority to the quality of students' learning in all areas of the curriculum.

A good secondary school provides differentiated programs and offerings to meet the special needs of youth. Although all youth, as heirs of a joint culture, share many common needs, they also have special needs which a good school endeavors to satisfy. Special needs emerge as the inevitable concomitants of a heterogeneous school population. Students differ markedly not only in their capacities for learning, but also in their educational and vocational preferences and ambitions, and in their competencies in the basic tools of learning. A good secondary school conceives the student not as a stereotype, but as an individual endowed with unique potentialities for growth and development. It seeks to develop these potentialities in directions that are in harmony with its objectives.

This is a problem that challenges the best efforts of every school. Few, even among the best schools, have found satisfactory solutions. Certainly involved is the careful study of the abilities, interests, and needs of students. Involved also is the provision of various means for the accomplishment of the task. Among the most promising practices, some of which are found in all good secondary schools are special classes and advanced courses for superior students; special and remedial classes for slow learners; ability grouping; elective courses; adaptation of instruction to individual differences within regular classes; moderate acceleration; the provision of guidance, health and library services; and differentiated courses to meet the needs and interests of students in such areas as college preparation, industrial arts, home economics, business education, and agriculture. Above all, good teaching is indispensable if the special needs of youth are to be satisfied.

A good secondary school provides opportunities for participation in student activities. Although student activities have long been a part of the curriculum of the school, the offerings have been greatly extended in recent decades. At best they are selected and designed to supplement and extend learnings in general and special education. They are justified only in the degree to which they contribute toward the attainment of the purposes of the school. In a good secondary school they are neither given an unwarranted amount of

time by students, nor are they treated as insignificant and irrelevant parts of the total program.

A variety of different types of student activities is provided, including among others, dramatics, assembly programs, school publications, glee clubs, bands, orchestras, athletics, student councils, science and other clubs, and outdoor experiences. Participation in carefully chosen activities is encouraged in order that each student may derive the values that may accrue therefrom, values such as deepened intellectual interests, the wise use of leisure, self-direction in the practice of good citizenship, sound mental and physical health, and growth in effective leadership. Good secondary schools recognize that students will derive such values from student activities only if they are wisely selected, and are properly coordinated and supervised.

A good secondary school makes available effective guidance, health, and library services. Each of these services is indispensable in the modern secondary school. The basic function of guidance and counselling is to help each student better to understand himself in order that he may make wise decisions in reference to his own education, his selection of a vocation, and other life problems. This implies the need of careful study of each student by means of techniques and devices that have been greatly improved in recent years. Health services are concerned not only with the detection of disease and defect, important as this is, but also with the development and maintenance of good physical and mental health. Effective library services seek to make appropriate books and other learning aids available and accessible to students, and to help students to discover economical and efficient ways of using these resources. In a good secondary school these services operate not in isolation, but in close association with each other and with the total instructional efforts of the school. They necessitate well trained personnel, such as guidance officials and counsellors, whose responsibilities are definitely allocated, and who are capable of providing effective leadership for teachers.

A good secondary school has competent and dedicated teachers. This is probably the most distinguishing characteristic of the good school. Indeed, the quality of the education provided depends in large measure upon the quality of the faculty. Although superior teachers differ in many respects, as for example, in personality, philosophical outlook, age, sex, and experience, they have certain general qualities in common. They have had a liberal education

in the humanities, the social studies, the sciences, and the arts. But their education is more than book learning, and it was not finished when they were awarded academic degrees. Liberally educated teachers translate knowledge into behavior, and they are constantly seeking to extend and deepen their understandings and appreciations of the world in which they live.

Competent teachers in secondary schools are masters of the subjects they teach, and they are able to perceive the relationships of their specialties to other areas of the curriculum. To them subjects and subject matter are not ends in themselves, but are means utilized to achieve worthy goals and purposes. They are students of the adolescent mind and personality, and are able to perceive how things look through the eyes of their students. They are versatile in their teaching methods and procedures, and are able to adapt instruction to the maturity levels of students. In short, they are superior teachers because they are able to produce desirable changes in the behavior of youth.

A good secondary school is competently administered and supervised. Administration is a process which inevitably attends organized human effort in any sphere of life in which common and individual needs are to be served. The role of administration in the modern secondary school is to provide the leadership, conditions, facilities, and resources, human and physical, which are needed in order to promote good teaching. The effectiveness of administration is seen in the quality of the relationships among students and faculty, the standards that are maintained, and the competencies of students while in school and at the point of leaving.

Certain trends in administration are clearly discernible. For example, highly formalized and fixed patterns of organization have given way to definite but flexible and adaptive designs. Instead of a preoccupation with management, although this is important, greater stress is placed upon the creative aspects of administration, the problem solving approach, and upon experimental attitudes, imagination, and resourcefulness. Significant, indeed, is the move toward developing school policies on the basis of the cooperative efforts of all who will be affected by these policies. The administrator of a good school conceives of his major role as that of providing effective leadership in the improvement of instruction.

A good secondary school constantly evaluates its accomplishments. Decisions as to whether a school is of good quality or not ultimately rest upon two things: (1) the accumulation of evidence,

and (2) the passing of judgment on the evidence. This is no simple task, nor is the performance of it one about which many secondary schools are satisfied. Nevertheless, good schools are not complacent in this regard. Various agencies, such as the *Cooperative Study of Secondary School Standards* and the *Educational Testing Service,* are rendering valuable assistance in evaluation.

In directing efforts toward evaluation good schools assemble information concerning each of the characteristics previously mentioned. They focus attention primarily upon the students and their attainments. Among the kinds of evidence frequently collected are the following: results of standardized tests, particularly in the tool subjects; interest inventories; general achievement tests; follow-up studies of the records of students in colleges or on jobs; attitudes of alumni and parents regarding the adequacy of the school's program; and the cumulative school records of students.

The collection of evidence marks only the initial step. There remains the important task of organizing and interpreting the evidence in the light of the objectives and purposes of the school, and the nature of the school population. Only in this way can valid decisions be reached in regard to present strengths and weaknesses. Such evaluations, if carried on efficiently and expertly, afford the most dependable bases for continuous improvement.

CONCLUDING COMMENTS

The writer has attempted to delineate in broad outline some of the common qualities and characteristics of good secondary schools. He does not assume that the picture portrayed is complete. Nor does he assume that all the factors mentioned are of equal importance. A good secondary school is always more than the summation of disparate parts. It is a living organism in which students, faculty, buildings, curriculum, and administration are inextricably interwoven. It has an indigenous spirit readily discernable to those who enter its doors, a spirit which though often difficult to describe, invariably includes a seriousness of endeavor, a high esteem for learning, and respect for the dignity and worthiness of every member of the school community. Such a spirit is not the resultant of chance. Rather it represents the flowering of the deliberative and painstaking efforts of all who have the vision to see what is possible, and the willingness and persistence to work for its realization.

Our Evolving Secondary School

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THE public secondary school of today has grown into the type of institution it is through waves of endeavor for a different and better school by professionally minded educators and through storms of public criticism by educators and citizens for a school that would serve youth or a stratum of the youth population in a manner fashioned for the personal goals these advocates set for youth. The direction of the character and kind of secondary education for youth was not always in a discernible direction. In fact, the trends for better secondary education are much like the pendulum, far in one direction during a certain period and then swinging in an apparent opposite direction at another time.

The first secondary school in Boston, Massachusetts, now called the Boston Public Latin School, was not a public school, and it was not a school for all youth of the community. It was limited to boys, whose parents could afford to pay the tuition and it was for boys who planned to enter Harvard College and to prepare for the ministry.

This school became the pattern for the secondary school of the era with small degree of liberality of purpose to the extent of educating boys to enter other professions.

That inevitable wave of public criticism by the public came because it was not the type of school that provided for a greater opportunity for more education of a more practical character for more youth. Girls were allowed to use the school building twice a week when it was not used by the boys. It was soon realized that there were no higher institutions of learning for women in that day and that the prevailing type of education was hardly suitable for the role of women in our early American life. Education for life adjustment so strongly condemned today, was the impelling nature for a new type of secondary school which was now called the Academy.

This secondary school was set up to educate youth in the more practical ways of life, at least so stated by the founder of the first American Academy, Benjamin Franklin. This type of school grew and prospered but it began to lose its place of esteem and prestige

for not providing enough of the traditional classical type of secondary education still maintained in the early American Grammar and Latin School. This new school yielded in time to the pressure of public demand for a strictly classical type of program and it patterned itself more and more like the grammar school than the kind of the secondary school envisioned by its first founders.

The educational pendulum swung again—but in the direction that portended to provide a program of education that would meet the assumed needs of school youth of the day. This school attempted to encompass both the traditionally classical and modern life adjustment types of secondary education for youth. In time, however, to maintain its esteem and its respected place in our American culture and again in the face of public criticism, the Academy had to revert more to the style of the early grammar school. Consequently, it converted itself educationally into a secondary school that served only a selected group of youth, those headed for college. The college was firm in the kind of secondary education it would accept and the Academy had little choice in shaping the school and its program to fit the dominant demand of the day.

This secondary school apparently did not meet all the educational needs of the growing youth population and the public secondary school to be known as the High School came into existence while the other two types of secondary schools continued to serve their special selected groups of youth as they do even to this day, especially the Academy.

To remain in the orbit of educational respectability and to assure its support by the most influential members of the school community this new public high school had to accept some of the same aims and purposes as the earlier secondary schools, except that it could not select or limit the number of youth it would serve. This was a public tax supported institution. Early attempts were made to select the students through an examination hurdle for admission to the school from the common or grammar school as the present elementary school was then called. This plan of acceptance to the school was soon dropped as the idea of the universality of education for all youth became more generally acceptable to our citizens.

This American high school prospered and it grew in size as it became increasingly more acceptable to the American public that supported the schools. Inspired leaders in secondary education

gradually shaped the new school partially through trial and error and partially through a confirmed conviction, buttressed at times only with mere personal courage in a devoted determination to meet the current needs of youth, into the comprehensive type of high school of the day. The path was neither easy nor straight. Public demand and criticism caused the educational pendulum to swing again and again and at times to oscillate and at other times merely to quiver.

Through it all educators developed and acquired the junior high school, a distinctive American educational institution, the public junior college, the community college, the adult and evening school, the six year school and the consolidated or central school. Educational programs also evolved in such educational terminology as the core curriculum, the differentiated curriculum for the slow learner and for the academically talented, vocational education, progressive education, the all-year school, the outdoor school, the extra curricular program, the work experience program, the cooperative school and industrial program, and many other types of education. All these developments in secondary education were designed to meet the needs of all the youth of all the people. In fact, in the broader sense the emerging secondary school was putting into effect a life adjustment program for all retaining as much of the traditional program as it could justify.

This enlarged school program for all youth, who had widely diversified aims, interests, aptitudes and learning capacities soon came under attack by those who questioned the necessity and the advisability of attempting to educate youth who could not fit into the traditional pattern of education of the early Academy. It was never stated so bluntly as this, but the charge was made with subtly and firmness against the school. The critics claimed that the school carried on a program of anti-intellectualism. It offered a "watered down" program to youth and it permitted them to select the "easy" subjects and those most educationally palatable to them and likened the educational menu to the cafeteria type of meal. The degree of condemnation of the high school program was accentuated when the Russians put their "Sputniks" into outer space previous to the placing of our "Explorer" into orbit. These critics would not recognize that it was a high political decision to transfer our scientific efforts to other scientific and military projects. This was the occasion for a renewed attack on education and to make education the scapegoat to cover up the dismal failure of our scientists to

launch a satellite before the Russians. The cry goes forth, "too little mathematics and science, and too mediocre and therefore too few capable scientists."

The educational pendulum swings again. Schools must do away with the "frills" and all must have more and more basic subjects, including mathematics and science. The critics said the struggle for the proper balance in educational programs for our youth is on now. Educators are doing now what they always do when such attacks on education are made, evaluate most critically the present educational programs for the youth that are now in the schools.

It is quite likely that educators have erred in judgment in providing certain kinds of learning areas for some youth. Most of these so-called "soft" subjects merely provided for certain youth on an experimental basis in an honest endeavor to give something of value to youth to find their places as useful members of our society. Some of the newer subjects such as "driver education," "health education," "cosmetology," and others have been fully justified as in the best interest of our youth who are finding their rightful places in our American democracy.

Our evolving American secondary school has a laudable record of achievement. In brief, it must be regarded as providing the best system of secondary education in the world. As an institution, it justifies the philosophy of universality of education for youth. It enrolls about 90% of its total school youth population which far exceeds that of any other nation.

It serves all youth through the comprehensive type of school. It has developed a personal guidance and counselling service for youth that provides a personal interest in youth development often replacing a weakening and disappearing parental responsibility for youth. This service guides him in a good and proper choice of program, in line with his interests, inherent potentialities, aptitudes, and intellectual capacity to succeed. If such a program is effectively administered, and it is in most of our schools, there is little or no wastage in the development of our human resources. The program is challenging to all, each in his own way, and with full recognition of the practical principle that youth differs in its interests, abilities and in its determination to achieve and to succeed.

This great American institution, the comprehensive high school has become such an integral part of our national life and culture that it is recognized as the indispensable agency of society to pro-

vide the essential needs of youth. These educational needs known as "The Imperative Needs of Youth" are stated in the publication, *Planning for American Youth.**

1. All youth need to develop saleable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as education in the skills and knowledge of their occupations.

2. All youth need to develop and maintain good health and physical fitness and mental health.

3. All youth need to understand the rights and duties of the citizen of a democratic society, and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation and to have an understanding of the nations and peoples of the world.

4. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.

5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values and received by the consumer and the economic consequences of their acts.

6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.

7. All youth need opportunities to develop their capacities to appreciate beauty in literature, art, music, and nature.

8. All youth need to be able to use their leisure time well and to budget it wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.

9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, to be able to live and work co-operatively with others and to grow in the moral and spiritual values of life.

10. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.

The present American public secondary school will prosper even under the strong attacks upon it now and in the future to the degree that the American people will more fully understand its purpose and function in developing our greatest natural resource, our youth. The public is committed to support this school because it is the recognized national institution that can, by its great work, best maintain our high standard of living and assure the future prosperity and security of our nation.

* *Planning for American Youth*, Page 9, 1951, National Association of Secondary-School Principals, Washington. D. C.

Teaching Reflective Thinking in High School

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THE ability to think reflectively in a wide variety of appropriate situations is a valid objective for students in high school. Almost all teachers and other citizens agree on the importance of achieving this objective. Moreover, modern instructional methods are greatly improved over those commonly used in the past when judged in terms of their contributions to the achievement of reflective thinking. A few comments on some of these methods will help to provide a basis for this assertion.

Teachers today use a "problem approach" to learning situations far more frequently than was true in the past, or is true now in the schools of other countries. When this methodology is used students may or may not select the problems to be studied, but in either case they often participate in the formulation of related sub-problems. They help to devise or select methods of studying the problem situation. They share in the collection and organization of data they believe will be helpful in arriving at a solution. They struggle with the task of analysing and interpreting their data. They formulate solutions and means of testing them.

These behaviors stand in sharp contrast to the more limited ones that characterize traditional methods of teaching and learning. The ability to recall and recite, once dominant, is supplemented in a problem solving approach by other abilities that are more complex and intellectually demanding. Moreover, this approach if properly executed involves a fundamental shift in attitude. More responsibility is placed upon the student for carrying on his own learning. His attitude is more likely to be one of learning for its own sake, rather than merely to please the teacher or pass the examination—as it all too often is under traditional methods.

It is not necessary to adopt any particular design for organizing the learning activities in order to employ the "problem approach," but it is very frequently found in so-called "core-curriculum" designs. However, much of the educational experimentation on the development of reflective thinking abilities has been done in courses bearing familiar subject-field names such as English, Geometry,

Social Science, and Science. When the "problem approach" is used in a subject-field class, the selection of the problems is usually quite properly restricted to those clearly relevant to the field, but this does not necessarily also restrict the opportunity to do creative and reflective thinking about the problem.

If the ability to think reflectively is genuinely accepted as an objective, the learning activities rely upon the higher mental processes even when the "problem approach" in a broad sense is not used. If, for example, the ability to formulate valid generalizations is one of the more specific objectives, the teacher must refrain at least part of the time from stating the principles, and instead arrange the situation so the students are challenged to state their own tentative generalizations, and then to qualify and refine these statements as additional data may suggest.

Similarly, if the ability to apply principles to explain a situation or predict an outcome is one of the specific objectives, it is obvious that the teacher should frequently arrange to have the student meet new situations in which he has an opportunity actually to apply the principles. This behavior is not the same as remembering an explanation or prediction associated with a familiar situation—it is of a higher order in the hierarchy of cognitive abilities.

It is probably true in general that valid modern instructional methods demand relatively more of the higher mental processes and relatively less ability to recall extensive bodies of knowledge of the sort formerly demanded. Unfortunately, these gains remain inconspicuous because evaluative techniques still lag somewhat behind curricular emphases, and tests that stress recall of information fail to reveal the gains in power to think achieved by students.

Although many modern teachers unquestionably are doing a better job of teaching students to think reflectively than was true of teachers generally in the past, progress toward achievement of the objective appears to be far below optimum. One of the reasons that achievement in critical thinking is less than optimum is that certain other objectives are quite generally considered even more important. Among these are the ability to read with comprehension, the ability to write with reasonable adherence to the ordinary conventions of grammar, punctuation, and style, and some skill in certain other aspects of the arts of communication. Of considerable importance also is the accumulation of a stock of concepts and factual information essential for carrying on effectively the activities of a citizen in the modern world. Such objectives as these are not

only important in their own right, but are frequently considered as prerequisites to any substantial accomplishment in critical thinking. The ability to think critically thus tends to be merely a "paper" objective, dear to the hearts of educational theorists, but obviously unrealistic to teachers in typical situations.

Yet it can be argued that this assessment of the relative importance of these various objectives is partially self-defeating. Many students pursue their learning of the communicative arts in a languishing manner because their school work seems to them to involve little that urgently needs to be communicated. Oral communication, particularly via telephone and interminably prolonged, suffices for exchanging data on their immediate adolescent interests. Similarly, although they recognize that the concepts and facts they are asked to learn are important to some people, the pupils themselves aim only to learn them well enough to be recalled on the next examination.

Faced with this situation, some teachers have sought to stimulate interest and more active efforts to learn by using "the problem approach." Sometimes the problems that are attacked are supposed to be of immediate concern to the students working on them, but even if this is more simulated than real, it was pointed out above that behaviors involved in solving problems are generally considered to rank higher in the intellectual hierarchy than recall of information. Moreover, if the communication skills are involved in connection with the work on a problem situation, the learning experience is in general a better integrated one than when they are learned in a logical context of a different sort.

Evidence has gradually been accumulating to show that, in general, students who are taught by a "problem-solving" approach do at least as well on standard tests of knowledge and skill as those who have been taught by more conventional methods. In addition, it is ordinarily found that students who have been deliberately taught methods of thinking critically can improve in this ability and excel those who have not had comparable emphasis on the objective and appropriate learning activities.

Why, then, aren't there more efforts to put more emphasis on critical thinking and to devise appropriate learning activities? One of the reasons is that, for most teachers, the formulation of the objective has remained at a high level of generality. Before teaching can begin, it is necessary to analyse the objective to a level of specificity, both as to behavior and content, that is adequate for

suggesting learning activities. The teacher needs a fairly definite idea as to what the students are to do today, tomorrow, and throughout the unit or course if the instruction is to produce measurable achievement. The broad outlines of problem solving procedure, usually in Dewey's formulation, are fairly well known, but when it comes to the more specific behaviors, a void occurs. What specific behaviors are required in recognizing and formulating a problem and hypotheses as to its solution? What specific behaviors are involved in gathering and organizing data intended to help solve the problem? What specific behaviors are involved in analysing and interpreting the data? What specific behaviors are involved in drawing conclusions and testing them?

Until answers to these and other similar questions are in the possession of the teacher, it is virtually impossible for him to do an effective job of teaching his students to think critically or for them to grow in the ability to solve problems by their own creative efforts. When the teacher does have these relatively specific components of critical thinking firmly in mind, he can make headway in selecting and organizing learning activities.

Over a period of many years curriculum builders have selected and organized learning activities with the content of the objectives dominant. Much is now known about how to organize the curriculum so that continuity of experience is enhanced as far as the content aspects are concerned. Moreover, a great deal is also known about how to organize activities into sequences so that the content aspects are regularly broadened and deepened. Some knowledge exists as to ways of organizing activities so that integration of content is facilitated. As a result of this knowledge on the part of curriculum builders, many modern curriculums are far superior to the ones that they supplanted.

However, when we look for similar analyses on the behavioral aspects of the critical thinking objectives, we find much less work has been done, and most of it remains unknown. As long as the doctrine of formal discipline reigned in the councils of curriculum building, problems of instructional method and curriculum building were comparatively simple. Now, however, we need desperately to know how to select learning activities suitable for developing critical thinking abilities in the very young. We need to know how to arrange these in continuous sequences which broaden and deepen the behavioral demands on the students. In other words,

we need to be able to arrange the specific behaviors on some scale of complexity from simple to profound.

Until more progress has been made along these lines, we may expect the teaching of critical thinking to remain less than maximally effective. Until now, each piece of research has by necessity dealt with limited portions of the entire domain encompassed by this objective. Much of the work has been done using science as the content, but important studies have used other types of content. If the ability to do critical thinking is to be taken as a school-wide objective, and not one that is delegated to one department, a large amount of work still needs to be done to determine what content best serves to promote particular types of critical thinking behavior. In the past, the content has usually been predetermined, and then specific behaviors have been sought in terms of the selected content. If neither content nor behavior is considered dominant in the selection process, but they are to be treated as coordinate in determining the selection of learning activities, there is reason to believe the total experience will be maximally effective.

Current criticisms of secondary education range from complaints that too many of the students fall below acceptable standards of achievement on comparatively simple objectives, such as the ability to recall the spelling of common words, up to a more comprehensive charge of general intellectual incompetence. It is noteworthy that criticisms formulated in this manner often point primarily to the behavioral aspects of the objectives. Content, although not ignored, is in the background. On the other hand, much is being said about inadequate knowledge in certain fields, and particularly in science and mathematics. Criticisms formulated in these terms point primarily to the content aspects of the objectives. Behavior, although not ignored, is here often in the background.

Presumably a solution of the current crisis in secondary education will require more than merely increased emphasis upon the recall of information and improved laboratory techniques in science and manipulative skills in mathematics. It will, I think, require notable gains in the ability to do creative and critical thinking. If so, suitable learning activities must be selected and organized in the schools. This can be adequately accomplished only when the specific behaviors involved in critical thinking are widely known among teachers. In the meantime we must continue, on the basis of the knowledge we now have, to provide more and richer opportunities for students to learn to do reflective thinking.